REMARKS

Claims 1-34 were pending in this case. In the amendment hereinabove, claims 6, 12, 20 and 23 have been amended to correct a typographical error, and claims 35-72 have been added. Accordingly, claims 1-72 are now pending. Based upon the following remarks, it is respectfully submitted that these claims are allowable.

A. §112 Rejection

Claims 1-34 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed and it is submitted that these claims are in conformance with 35 U.S.C. §112.

The Examiner specifically cited the four sub-subparagraphs of the last subparagraph of each independent claim, i.e., the recitations concerning the "maximum sample signal value", "minimum sample signal value", "maximum sampled data signal value" and "minimum sampled data signal value". The Examiner is respectfully referred to paragraphs 48-50 (reproduced below with emphasis) and Figure 5A (copy attached) of the disclosure where an illustrative embodiment of this subject matter is expressly described. Using the four sub-subparagraphs of the last subparagraph of independent claim 1 as an example (applicability to the remaining independent claims will be evident), those portions of paragraph 50, in conjunction with Figure 5A, which most directly address each element are identified with corresponding designators in brackets ({50A}, {50B}, {50C}, {50D}, {50E}).

1. An apparatus including data signal amplification and

processing circuitry with multiple signal gains, comprising:

. . . .

{50A: said maximum sample signal value when said maximum value fails to traverse a predetermined lower threshold,}

{50E: said minimum sample signal value when an adjacent larger one of said plurality of sample signal values traverses a predetermined higher threshold,}

{50B, 50D, 50E: a smaller of mutually adjacent ones of a pair of said plurality of sample signal values when a larger one of said pair of sample signal values traverses said predetermined higher threshold and said smaller value fails to traverse said predetermined lower threshold, and}

{50C: a combination of said smaller and larger ones of said pair of sample signal values when said larger value traverses said predetermined lower threshold and fails to traverse said predetermined higher threshold.}

[00048] Referring to Figure 5A, in accordance with the presently claimed invention, it will be understood that, as noted above, increasing the acquisition cycle to three or more signal samples, can potentially increase the dynamic range of the circuitry further by providing multiple selectable signal gain factors. In this example, the acquisition cycle uses four signal samples, thereby providing four sample signal values S1, S2, S3, S4. In conformance with the discussion above, these values S1, S2, S3, S4 have successive values that decrease in accordance with the charge sharing characteristics of the circuitry of Figure 1. It will be understood for this example that the circuitry of Figure 1 would be modified in accordance with well-known circuit techniques to provide for four signal gains by

adding additional feedback capacitors with associated switches (not shown), and the timing diagram of Figure 2 would include additional signal sampling pulses 9s (not shown).

[00049] In conformance with the discussion above, when determining which one or more of the signal samples S1, S2, S3, S4 are to be used in determining the value for the final pixel signal 29 (Figure 3), one or more of such signal sample values S1, S2, S3, S4 are compared to the criteria established by the higher Th_high and lower Th_low thresholds. It should be understood that references to the thresholds as being "higher" and "lower" are merely used for convenience to indicate that one threshold is "higher" than the other in the sense that such "higher" threshold extends further than the "lower" threshold from the point of reference used. For example, the point of reference would normally be considered to have a null (e.g., zero) value and the "higher" threshold would have a magnitude greater than that of the "lower" threshold, with it being immaterial whether the thresholds themselves were positive or negative in polarity.

[00050] The first signal sample S1 is compared to the thresholds 21h, 21l to determine whether such signal sample S1 has a value in region 1, 2 or 3. {50A: If this signal sample S1, which has the maximum signal sample value, is in region 1, i.e., is less than the lower threshold, this signal sample S1 provides the basis for the final pixel signal 29.} {50B: If this signal sample S1 is in region 3, its value is not used in generating the final pixel signal 29.} {50C: If this signal sample S1 lies in region 2, then it is selectively combined with the value of the next signal sample S2, in conformance with the discussion above.} {50D: This comparison process is repeated for the remaining signal samples S2, S3, S4 in succession.} {50E: With respect to the final signal sample S4, in the event that preceding signal sample S3 has a value in region 3, then this last signal

sample S4, being the minimum signal sample, is used for generating the final pixel signal 29.}

Using sentence "50A" in paragraph 50 as an example (with emphasis): "If this signal sample S1, which has the maximum signal sample value, is in region 1, i.e., is less than the lower threshold, this signal sample S1 provides the basis for the final pixel signal 29." This directly supports the recitation of claim 1 which reads (with emphasis): "said maximum sample signal value when said maximum value fails to traverse a predetermined lower threshold". In other words, when the maximum sample signal value is less than the lower threshold ("Th_low"), i.e., fails to traverse the lower threshold, such sample signal value is represented by the recited "processed signal value". Hence, if the maximum sample signal value fails to traverse—i.e., fails to cross over, transcend or exceed–the lower threshold, then such sample signal value is represented by the "processed signal" provided by the "processing circuitry". Similarly, if the maximum sampled data signal value fails to satisfy—i.e., fails to cross over, transcend or exceed—one of a plurality of criteria, then such signal sample value is represented by the "processed signal" provided by the "processing circuitry".

B. New Claims

Claims 35-72 have been added hereinabove. It is respectfully submitted that these claims add no new matter, are fully supported by the disclosure and are in condition for allowance.

PATENT

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AMENDMENT A (IN RESPONSE TO PAPER NO. 20031015
(OFFICE ACTION DATED JANUARY 21, 2005))

C. Conclusion

Claims 1-72 are now pending in this case. Based upon the foregoing remarks, it is respectfully submitted that these claims are allowable, and reconsideration and early allowance of these claims are requested.

Respectfully submitted,
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